

***SILVER ROSE WINERY AND RESORT PROJECT  
ENVIRONMENTAL NOISE ASSESSMENT  
CALISTOGA, CALIFORNIA***

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## INTRODUCTION

This report presents the results of the environmental noise assessment completed for Silver Rose Winery and Resort project proposed in Calistoga, California. Currently, the project site is developed with a 20-room hotel, a 5,000 case winery, approximately 7.8-acre vineyard, a private residence, and an on-site manager residential unit. The property was entitled for new resort development in 2007 as the “Terrano” project, but that has not been constructed. The proposed project would consist of approximately 85 hotel rooms and approximately 21 residences. In addition to the hotel and residences, there will be an operating winery, including tasting room, crush pad, production facility, wine cave with barrel storage, and approximately 6 acres of vineyards. Adjacent to the winery will be a small deli with limited retail and a gathering place for the residences. The hotel will include a restaurant and bar, spa and fitness, several pools, multiple meeting facilities, private dining rooms, and typical back of house infrastructure.

This report evaluates the project’s potential to result in significant noise impacts with respect to applicable CEQA guidelines. The report is divided into two sections. The Setting Section provides a brief description of the fundamentals of environmental noise, summarizes applicable regulatory criteria, and discusses the results of the ambient noise monitoring survey completed to document existing noise conditions. The Impacts and Mitigation Measures Section evaluates noise impacts resulting from the project in terms of noise and land use compatibility, temporary noise level increases resulting from project construction, and permanent noise level increases resulting from the operation of the project.

## SETTING

### Fundamentals of Environmental Noise

Noise may be defined as unwanted sound. Noise is usually objectionable because it is disturbing or annoying. The objectionable nature of sound could be caused by its *pitch* or its loudness. *Pitch* is the height or depth of a tone or sound, depending on the relative rapidity (frequency) of the vibrations by which it is produced. Higher pitched signals sound louder to humans than sounds with a lower pitch. *Loudness* is intensity of sound waves combined with the reception characteristics of the ear. Intensity may be compared with the height of an ocean wave in that it is a measure of the amplitude of the sound wave.

In addition to the concepts of pitch and loudness, there are several noise measurement scales which are used to describe noise in a particular location. A *decibel (dB)* is a unit of measurement which indicates the relative amplitude of a sound. The zero on the decibel scale is based on the lowest sound level that the healthy, unimpaired human ear can detect. Sound levels in decibels are calculated on a logarithmic basis. An increase of 10 decibels represents a ten-fold increase in acoustic energy, while 20 decibels is 100 times more intense, 30 decibels is 1,000 times more intense, etc. There is a relationship between the subjective noisiness or loudness of a sound and its intensity. Each 10 decibel increase in sound level is perceived as approximately a doubling of loudness over a fairly wide range of intensities. Technical terms are defined in Table 1.

There are several methods of characterizing sound. The most common in California is the *A-weighted sound level or dBA*. This scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Representative outdoor and indoor noise levels in units of dBA are shown in Table 2. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events. This energy-equivalent sound/noise descriptor is called  $L_{eq}$ . The most common averaging period is hourly, but  $L_{eq}$  can describe any series of noise events of arbitrary duration. The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about plus or minus 1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends upon the distance the receptor is from the noise source. Close to the noise source, the models are accurate to within about plus or minus 1 to 2 dBA.

Since the sensitivity to noise increases during the evening and at night -- because excessive noise interferes with the ability to sleep -- 24-hour descriptors have been developed that incorporate artificial noise penalties added to quiet-time noise events. The *Community Noise Equivalent Level, CNEL*, is a measure of the cumulative noise exposure in a community, with a 5 dB penalty added to evening (7:00 pm - 10:00 pm) and a 10 dB addition to nocturnal (10:00 pm - 7:00 am) noise levels. The *Day/Night Average Sound Level,  $L_{dn}$* , is essentially the same as CNEL, with the exception that the evening time period is dropped and all occurrences during this three-hour period are grouped into the daytime period.

**TABLE 1 Definitions of Acoustical Terms Used in this Report**

<b>Term</b>	<b>Definition</b>
Decibel, dB	A unit describing, the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micro Pascals (or 20 micro Newtons per square meter), where 1 Pascal is the pressure resulting from a force of 1 Newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micro Pascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and Ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, $L_{eq}$	The average A-weighted noise level during the measurement period.
$L_{max}$ , $L_{min}$	The maximum and minimum A-weighted noise level during the measurement period.
$L_{01}$ , $L_{10}$ , $L_{50}$ , $L_{90}$	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, $L_{dn}$ or DNL	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured in the night between 10:00 pm and 7:00 am.
Community Noise Equivalent Level, CNEL	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels in the evening from 7:00 pm to 10:00 pm and after addition of 10 decibels to sound levels measured in the night between 10:00 pm and 7:00 am.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.

Source: Handbook of Acoustical Measurements and Noise Control, Harris, 1998.

**TABLE 2 Typical Noise Levels in the Environment**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	<b>110 dBA</b>	Rock band
Jet fly-over at 1,000 feet		
	<b>100 dBA</b>	
Gas lawn mower at 3 feet		
	<b>90 dBA</b>	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	<b>80 dBA</b>	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	<b>70 dBA</b>	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	<b>60 dBA</b>	
		Large business office
Quiet urban daytime	<b>50 dBA</b>	Dishwasher in next room
Quiet urban nighttime	<b>40 dBA</b>	Theater, large conference room
Quiet suburban nighttime		
	<b>30 dBA</b>	Library
Quiet rural nighttime		Bedroom at night, concert hall
	<b>20 dBA</b>	
	<b>10 dBA</b>	Broadcast/recording studio
	<b>0 dBA</b>	

Source: Technical Noise Supplement (TeNS), Caltrans, November 2009.

## Regulatory Background

The proposed project would be subject to noise-related regulations, plans, and policies established within documents prepared by the State of California and the City of Calistoga. The project site adjoins sensitive receptors located in Napa County. Although, the project would not be under the jurisdiction of the County, regulatory background materials contained in the Napa County Noise Ordinance are also presented for reference below. These planning documents are implemented during the environmental review process to limit noise exposure at existing and proposed noise sensitive land uses. Applicable planning documents include: (1) the California Environmental Quality Act (CEQA) Guidelines, Appendix G, (2) the California Building Code (Chapter 12, Section 1207.11), (3) the City of Calistoga General Plan, (4) the City of Calistoga Municipal Code, and (5) the Napa County Noise Ordinance. Regulations, plans, and policies presented within these documents form the basis of the significance criteria used to assess project impacts.

### *State CEQA Guidelines*

The California Environmental Quality Act (CEQA) includes qualitative guidelines for determining significance of adverse environmental noise impacts. A project will typically have a significant impact if it would:

- (a) Expose people to or generate noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies.
- (b) Expose people to or generate excessive groundborne vibration or groundborne noise levels.
- (c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- (d) Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- (e) For projects within an area covered by an airport land use plan or within two miles of a public airport or public use airport when such an airport land use plan has not been adopted, or within the vicinity of a private airstrip, expose people residing or working in the project area to excessive aircraft noise levels.
- (f) For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Checklist items (a), (c), and (d) are relevant to the proposed project. The project is not located in the vicinity of an active public or private airstrip or a significant source of ground-borne vibration; therefore, checklist items (b), (e) and (f) are not carried forward in this analysis.

CEQA does not define what noise level increase would be considered substantial. Typically in high noise environmental (i.e. greater than 60 dBA,  $L_{dn}$ ), an increase by more than 3 dBA  $L_{dn}$

due to the project would be considered a significant impact. Where the existing noise levels are lower (i.e. less than 60 dBA,  $L_{dn}$ ), a greater than 5 dBA  $L_{dn}$  increase, would be considered a significant impact.

### *2010 California Building Code*

The State of California establishes exterior sound transmission control standards for new hotels, motels, dormitories, apartment houses, and dwellings other than detached single-family dwellings as set forth in the 2010 California Building Code (Chapter 12, Section 1207.11). Interior noise levels attributable to exterior environmental noise sources shall not exceed 45 dBA  $L_{dn}$ /CNEL in any habitable room. When exterior noise levels (the higher of existing or future) where residential structures are to be located exceed 60 dBA  $L_{dn}$ /CNEL a report must be submitted with the building plans describing the noise control measures that have been incorporated into the design of the project to meet the noise limit.

### *City of Calistoga General Plan*

The stated purpose of the Noise Element of the City of Calistoga 2003 General Plan is,

*“...to identify and appraise noise generation in the community in order to minimize problems from intrusive sound and to ensure that new development does not expose people to unacceptable noise levels.”*

To achieve this goal, the Noise Element contains the following objectives and policies, which are applicable to the subject project:

#### **Objective N-1.4**

Minimize the potential for new development projects to create unacceptable noise levels at sensitive receptors such as residential areas, hospitals, convalescent homes and schools.

#### Policies

P1. New residential projects shall be required to meet the following noise level standards:

- A maximum of 45 dB for interior noise level.
- A maximum of 60 dB for exterior noise level, especially when outdoor activities are important components of a project (e.g., multi-family housing).

P2. A noise study, including field noise measurement, shall be required for any proposed project, which would:


- Place a potentially intrusive noise source near an existing noise sensitive receptor, or
- Place a noise-sensitive land use near an existing potentially intrusive noise source.

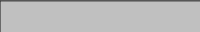
P3. New development projects shall not be approved unless they are generally consistent with the Noise Compatibility Guidelines contained in Figure N-4 (see Figure 1).

**Figure 1: Calistoga Noise and Land Use Compatibility Guidelines**

Land Use Category	Exterior Noise Exposure L <sub>dn</sub> or CNEL, dB					
	55	60	65	70	75	80
Residential, hotels and motels						
Outdoor sports and recreation Neighborhood parks and playgrounds						
Schools, libraries, museums, hospitals Personal care, meeting halls, churches						
Auditoriums, concert halls Amphitheaters						

  
**NORMALLY ACCEPTABLE**  
 Specified land use is satisfactory: any buildings involved could be of normal conventional construction, no special insulation requirements.

  
**CONDITIONALLY ACCEPTABLE**  
 Specified land use to be permitted only after detailed analysis of the noise reduction requirements and inclusion of noise insulation features in the design.


  
**UNACCEPTABLE**  
 New construction or development should generally not be permitted because mitigation is usually not feasible.

FIGURE N-4 LAND USE COMPATIBILITY GUIDELINES FOR NOISE

*City of Calistoga Municipal Code*

Chapter 8.20 of Title 8 ‘HEALTH AND SAFETY’, of the City of Calistoga Municipal Code contains regulations pertaining to construction related noise as follows:

- 8.20.025 Construction activity – Noise – Prohibited hours.A. It shall be unlawful for professional construction activity to occur on Sunday or between 7:00 p.m. and 7:00 a.m., any time during the week.
- B. For the purpose of this chapter “professional construction activity” shall mean construction by any person other than:
1. An individual homeowner working on that person’s primary residence;
  2. A public utility in response to an emergency situation; or
  3. City public works crew in response to an emergency situation or scheduled maintenance.

*Napa County Noise Ordinance*

Title 8, Chapter 8.16, Section 8.16.070 of the Napa County Noise Ordinance establishes exterior noise limits for sounds generated within the County. Exterior noise levels at suburban, single-family residential land uses cannot exceed 55 dBA for more than 30 minutes in any daytime hour (7:00 a.m. to 10:00 p.m.). When the offending noise source contains speech or music, the allowable noise limit is adjusted downward by 5 dBA. The applicable daytime exterior noise



level limit at neighboring residential land uses is 50 dBA and 45 dBA at night. These levels cannot be exceeded more than 30 minutes in an hour. For a sound that lasts up to 15 minutes out of a daytime hour, the level cannot exceed 55 dBA during the day and 50 dBA at night. For a sound level that lasts up to 5 minutes out of an hour during the day, the level cannot exceed 60 dBA. For a sound level that lasts up to 5 minutes out of an hour during the night, the level cannot exceed 55 dBA. For a sound that lasts up to one minute out of one hour during the daytime, the level must be 65 dBA or lower. For a sound that lasts up to one minute out of one hour during the night, the level must be 60 dBA or lower. Maximum noise levels cannot exceed 70 dBA during the day or 65 dBA at night.

#### Section 8.16.070

##### A. Maximum Permissible Sound Levels by Receiving Land Use.

1. The noise standards for the various categories of land use identified by the noise control officer, as presented in Tables 8.16.060 and 8.16.070 (Table 3) shall, unless otherwise specifically indicated, apply to all such property within a designated zone.
2. No person shall operate, or cause to be operated, any source of sound at any location within the unincorporated area of the county, or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level, when measured on any other property, either incorporated or unincorporated, to exceed:
  - a. The noise standard for that land use as specified in Table 8.16.070 for a cumulative period of more than thirty minutes in any hour; or
  - b. The noise standard plus five dB for a cumulative period of more than fifteen minutes in any hour; or
  - c. The noise standard plus ten dB for a cumulative period of more than five minutes in any hour; or
  - d. The noise standard plus fifteen dB for a cumulative period of more than one minute in any hour;
  - e. The noise standard plus twenty dB or the maximum measured ambient level, for any period of time.
3. If the measured ambient noise level differs from that permissible within any of the first four noise limit categories above, the allowable noise exposure standard shall be the ambient noise level.
4. If the measurement location is on a boundary between two different zones, the sound level limit applicable to the quieter noise zone shall apply.
5. Wherever possible, the ambient noise level shall be measured at the same location along the property line utilized in subsection (A)(2) with the alleged offending noise source inoperative. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period sufficient to

measure the ambient noise level, the ambient noise level may be determined by traveling away from the noise source to a point where a steady-state decibel reading is achieved. If this test is not possible, the noise level measured while the source is in operation shall be compared directly to the noise level standards.

- B. Correction for Character of Sound. In the event the alleged offensive noise, as judged by the noise control officer, contains a steady, audible tone such as a whine, screech or hum, or is a repetitive noise such as hammering or riveting, or contains music or speech, the standard limits set forth in Tables 8.16.060 and 8.16.070 shall be reduced by five dB, but not lower than forty-five.

**TABLE 3 Napa County Exterior Noise Limits**

<b>Table 8.16.070 EXTERIOR NOISE LIMITS (Levels not to be exceeded more than 30 minutes in any hour)</b>				
		<b>Noise Level (dBA) Noise Zone Classification<sup>1</sup></b>		
<b>Receiving Land Use Category</b>	<b>Time Period</b>	<b>Rural</b>	<b>Suburban</b>	<b>Urban</b>
Residential Single and double	10 p.m. -- 7 a.m.	45	45	50
	7 a.m. -- 10 p.m.	50	55	60
Residential multiple and country	10 p.m. -- 7 a.m.	45	50	55
	7 a.m. -- 10 p.m.	50	55	60
Commercial	10 p.m. -- 7 a.m.	60		
	7 a.m. -- 10 p.m.	65		
Industrial, including wineries	Anytime	75		

1.\*The classification of different areas of the county in terms of environmental noise zones shall be determined by the NCO, based upon assessment of county noise survey data. Industrial noise limits are intended primarily for use at the boundary of industrial zones rather than for noise reduction within the zone. (Ord. 777 § 1 (part), 1984: prior code § 5815)

**Existing Noise Environment**

The project site is approximately 22.5-acres and located within the City of Calistoga. The resort will consist of approximately 85 hotel rooms and approximately 21 residences. In addition to the hotel and residences, there will be an operating winery, including tasting room, crush pad, production facility, wine cave with barrel storage, and approximately 6 acres of vineyards.

Noise monitoring was completed at the site between November 15, 2011 and November 17, 2011 in order to quantify existing ambient noise levels. The noise monitoring survey included two long-term measurements (LT-1 and LT-2), as shown in Figure 1. The existing noise environment at the site and in the vicinity results primarily from traffic on Silverado Trail and Rosedale Road.

Long-term noise measurement LT-1 was located approximately 150 feet from the center of Silverado Trail. Noise levels measured at this site were primarily the result of traffic along Silverado Trail. During the measurement survey, it was noted that construction activities associated with the Mt. Washington Storage Tank project had temporarily installed traffic cones along Silverado Trail, resulting in substantially reduced traffic speeds. Hourly average noise levels at LT-1 ranged from 50 to 56 dBA  $L_{eq}$  during the day and from 40 to 54 dBA  $L_{eq}$  at night. The day-night average noise level at this location was 56 dBA  $L_{dn}$ . Data contained in I&R files, collected for a project located approximately one mile south along Silverado Trail, were reviewed. A comparison of the two datasets suggests that the  $L_{dn}$  at LT-1 assuming normal traffic conditions would be approximately 60 dBA.

Long-term noise measurement LT-2 was located approximately 30 feet from the center of Rosedale Road. Noise levels measured at this site were primarily the result of intermittent traffic. Hourly average noise levels at this location ranged from 44 to 62 dBA  $L_{eq}$  during the day and from 31 to 50 dBA  $L_{eq}$  at night. The  $L_{dn}$  at this location ranged from 52 to 53 dBA. The daily trends in noise levels at LT-1 and LT-2 is shown in Appendix 1.

## NOISE IMPACTS AND MITIGATION MEASURES

### Significance Criteria

Appendix G of the CEQA Guidelines states that a project would normally be considered to result in significant noise impacts if noise levels conflict with adopted environmental standards or plans or if noise generated by the project would substantially increase existing noise levels at sensitive receivers on a permanent or temporary basis. A significant noise impact would result if noise levels at proposed sensitive receiving land uses would exceed the City's noise and land use compatibility standards. A substantial permanent noise increase would occur if the noise level increase resulting from the project is 3 dBA  $L_{dn}$  or greater, with a future noise level of 60 dBA  $L_{dn}$  or greater, 5 dBA  $L_{dn}$  or greater in noise environments where noise levels would remain less than 60 dBA  $L_{dn}$ . A substantial temporary noise level increase would occur where noise from construction activities exceeds 60 dBA  $L_{eq}$  and the ambient noise environment by at least 5 dBA  $L_{eq}$  at noise-sensitive uses in the project vicinity for a period of more than one year.

**Impact 1: Noise and Land Use Compatibility.** Residential uses developed at portions of the project site would be exposed to "Normally Acceptable" noise levels based on the City of Calistoga General Plan noise standards. This is a less-than- significant impact.

New residential uses proposed closest to Silverado Trail and Rosedale Road would be exposed to  $L_{dn}$ 's of 60 dBA, and 53 dBA respectively. Private outdoor use areas of residential land uses

nearest Silverado Trail would be shielded by the residential units themselves, and future exterior noise levels at these shielded areas would range from 56 to 58 dBA  $L_{dn}$ . This level meets the City's noise goal for normally acceptable exterior noise (60 dBA  $L_{dn}$ ) for residential areas and the impact would be considered less-than-significant.

**Mitigation Measures:        None Required.**

**Impact 2:        Project Noise Generation.** Noise associated with weddings and other special events may generate noise levels in excess of applicable thresholds. This is a potentially significant impact.

The proposed project would place new guest lodgings, parking, and access driveways near residences to the north and east. The use of the proposed guest lodging is expected to result in the typical noises associated with such uses, including voices of guests, guest parking and unloading, vehicular noise on the access drives and room service and maintenance activities. These would not be new noise sources to the area.

The resort would host weddings, corporate group events, public and private events related to the wine industry, the Napa Valley Film Festival, and civic meetings. Of these events, weddings would generate the highest noise levels, and the noise from a wedding is used in this analysis to credibly represent worst-case conditions from corporate group events, public and private events related to the wine industry, the Napa Valley Film Festival, and civic meetings. Other small events such as stargazing, bocce ball, or gatherings around a fire pit may occur throughout the property, but such small events would not be expected to result in off-site noise impacts.

Outdoor wedding ceremonies and receptions would take place at venues such as the wedding lawn, approximately 850 feet from the nearest receptors to the east with line-of-sight to the wedding lawn, or at the wedding trellis, located approximately 550 feet from the nearest receptors to the east. Smaller weddings or events may occur at other venues throughout the site. Raised conversations and un-amplified music would be expected to generate noise levels of approximately 64 to 67 dBA  $L_{eq}$  at a distance of 50 feet. Noise levels would be approximately 71 dBA  $L_{eq}$  at a distance of 50 feet assuming amplified music. Noise levels at the nearest receptor to the east would be about 21 dBA lower assuming the event was held at the wedding trellis (50 dBA  $L_{eq}$  with amplified music, and 43 to 46 dBA  $L_{eq}$  with un-amplified music) and 25 dBA lower assuming the event was held at the wedding lawn (46 dBA  $L_{eq}$  with amplified music, and 39 to 42 dBA  $L_{eq}$  with un-amplified music).

The most stringent standard applicable to sounds generated by weddings would be the County's daytime and nighttime noise limits of 50 dBA  $L_{50}$  and 45 dBA  $L_{50}$ , respectively (noise level not be exceeded more than 30 minutes in an hour). The hourly  $L_{eq}$  average noise level is used in this analysis for comparison to the adjusted County noise limits. The hourly  $L_{eq}$  is always equal to or greater than the hourly  $L_{50}$  so it provides a conservative estimate of the noise. Outdoor wedding ceremonies and receptions with amplified music occurring at the wedding trellis would generate noise levels that just meet the daytime noise limit at the nearest receptors to the east. Such sounds occurring after 10:00 p.m. would exceed the 45 dBA nighttime limit. Similarly, outdoor wedding ceremonies with amplified music occurring at the wedding lawn would generate noise levels below the daytime noise limit. However, outdoor wedding ceremonies with amplified music occurring at the wedding lawn would generate noise levels that exceed the 45 dBA

nighttime limit at the nearest receptors to the east.

Interior events are expected to take place in the meeting ballroom area overlooking the pond facing Silverado Trail, over 450 feet from the nearest buildings at the Solage Resort and approximately 1,150 feet from the nearest residences in the mobile home park to the south. Again, wedding ceremonies and receptions would likely generate the highest noise levels. Because the noise would occur indoors, it is assumed that the building, even with windows and doors open, would provide a minimum 5 dBA of noise reduction. Based on these assumptions, noise levels would be approximately 66 dBA  $L_{eq}$  at a distance of 50 feet outside the building. Noise levels would be about 19 dBA lower at 450 feet (47 dBA  $L_{eq}$  with amplified music, and 40 to 43 dBA  $L_{eq}$  with un-amplified music) and 27 dBA lower at 1,150 feet (39 dBA  $L_{eq}$  with amplified music, and 32 to 35 dBA  $L_{eq}$  with un-amplified music).

Events, particularly those with amplified music and those located at the at the wedding trellis, would generate noise levels that would exceed the Napa County 45 dBA nighttime noise limit resulting in a potentially significant impact.

**Mitigation Measures:**

Outdoor amplified music associated with weddings or other large events shall end by 10:00 p.m. Amplified music may occur indoors if windows and doors of the meeting ballroom area are maintained closed or if it can be demonstrated that noise levels do not exceed County standards. The wedding trellis area of the resort shall not be used for weddings or other large events past 10:00 p.m.

**Significance After Mitigation:**

Implementation of the above mitigation measures would reduce noise levels to meet Napa County Noise Ordinance Standards thereby reducing the impact to a less-than-significant level.

**Impact 3: Off-Site Traffic Noise Increases.** Project traffic would not substantially increase existing or cumulative traffic noise levels along area roadways. This is a less-than-significant impact.

Traffic data contained in the Traffic Impact Study<sup>1</sup> was reviewed to calculate potential project-related traffic noise level increases along roadways serving the project site. These data indicate that the project will generate a total of 1,165 new daily vehicle trips.

This analysis indicated traffic volumes in the site vicinity would increase slightly on Silverado Trail and Rosedale Road as a result of the proposed project. However, traffic noise levels due to the proposed project are calculated to increase by less than 1 dBA  $L_{dn}$  above existing conditions. Because traffic noise increases resulting from the proposed project would increase ambient noise levels by less than 3 dBA  $L_{dn}$ , this is considered a less-than-significant impact.

**Mitigation Measures: None Required.**

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<sup>1</sup> W-trans, Traffic Impact Study for the Silver Rose Winery and Resort Project, Draft Report, January 24, 2012.

**Impact 4: Construction Noise.** During project construction, adjacent homes in the vicinity of the project site would be intermittently exposed to high noise levels. This is a potentially significant impact.

Construction of the project is expected to result in a temporary increase in ambient noise levels at land uses in the vicinity. The resort would be constructed in approximately 22 to 24 months. Some residential units would be completed within the initial 22 to 24 month period, but is possible that some residential units would be developed in phases based on market demand. Project construction is expected to involve site improvements, such as the grading and paving of access roadways, establishment of utilities, cut and fill operations, foundation work, building framing, and landscaping. The hauling of excavated material and construction materials would also generate truck trips on local roadways.

Noise impacts from construction activities depend on the various pieces of construction equipment, the timing and length of noise generating activities, the distance between the noise generating construction activities for individual projects are typically carried out in stages. During each stage of construction, there would be a different mix of equipment operating. Construction noise levels would vary by stage and vary within stages based on the amount of equipment in operation and location where the equipment is operating. Typical construction noise levels at a distance of 50 feet are shown in Tables 4 and 5. Table 4 shows the average noise level ranges by phase for housing construction and Table 5 shows the maximum noise level ranges for different construction equipment. Most demolition and construction noise is in the range of 80 to 90 dBA at a distance of 50 feet from the source. Based on a review of the proposed site improvements, some construction activities on the eastern edge of the site would occur within 180 feet of the adjacent residences.

**TABLE 4: Typical Ranges of Noise Levels for Domestic Housing Construction at 50 Feet,  $L_{eq}$  in dBA**

Construction Stage	<i>Construction Equipment on Site</i>	
	All pertinent equipment present	Minimum required equipment present
Ground Clearing	83	83
Excavation	88	75
Foundations	81	81
Erection	81	65
Finishing	88	72

Source: U.S.E.P.A., Legal Compilation on Noise, Vol. 1, p. 2-104, 1973.

The highest noise levels would be generated during demolition, excavation, road building, and foundation work. Large pieces of earth-moving equipment, such as graders, excavators, and bulldozers, generate maximum noise levels of 85 to 90 dBA at a distance of 50 feet. Residences adjacent to the project site may be exposed to intermittent maximum noise levels of between 74 to 79 dBA and average noise levels of 72 to 77 dBA during busy construction periods when construction activities occur at the portion of the project site nearest these homes. These noise levels drop off at a rate of about 6 dBA per doubling of distance between the noise source and receptor.

Construction activities in areas nearest existing sensitive receptors, such as those along the east boundary of the site, would likely be limited to one construction season or less. The residential land uses located to the north and the Solage Resort to the south would be exposed to lower noise levels during project construction activities due to increased distances; however some of these areas may be exposed to average noise levels of greater than 60 dBA  $L_{eq}$  during busy construction periods.

**TABLE 5: Construction Equipment 50-foot Noise Emission Limits**

<b>Equipment Category</b>	<b><math>L_{max}</math> Level (dBA)<sup>1,2</sup></b>	<b>Impact/Continuous</b>
Auger Drill Rig	85	Continuous
Backhoe Bar	80	Continuous
Bender	80	Continuous
Chain Saw	85	Continuous
Compressor <sup>3</sup>	70	Continuous
Compressor (other)	80	Continuous
Concrete Mixer	85	Continuous
Concrete Pump	82	Continuous
Concrete Saw	90	Continuous
Concrete Vibrator	80	Continuous
Crane	85	Continuous
Dozer	85	Continuous
Excavator	85	Continuous
Front End Loader	80	Continuous
Generator	82	Continuous
Generator (25 KVA or less)	70	Continuous
Gradall	85	Continuous
Grader	85	Continuous
Grinder Saw	85	Continuous
Horizontal Boring Hydro Jack	80	Continuous
Insitu Soil Sampling Rig	84	Continuous
Jackhammer	85	Impact
Paver	85	Continuous
Pneumatic Tools	85	Continuous
Pumps	77	Continuous
Rock Drill	85	Continuous
Scraper	85	Continuous
Slurry Trenching Machine	82	Continuous
Soil Mix Drill Rig	80	Continuous
Street Sweeper	80	Continuous
Tractor	84	Continuous
Truck (dump, delivery)	84	Continuous
Vacuum Excavator Truck (vac-truck)	85	Continuous
Vibratory Compactor	80	Continuous
Vibratory Pile Driver	95	Continuous
All other equipment with engines larger than 5 HP	85	Continuous

Notes: 1. Measured at 50 feet from the construction equipment, with a “slow” (1 sec.) time constant.

2. Noise limits apply to total noise emitted from equipment and associated components operating at full power while engaged in its intended operation.

3. Portable Air Compressor rated at 75 cfm or greater and that operates at greater than 50 psi.

### **Mitigation Measures:**

The applicant shall develop a construction mitigation plan in close coordination with the City of Calistoga staff along with input from adjacent noise-sensitive land uses so that construction activities can be scheduled to minimize noise disturbance. The following conditions in related construction should be incorporated in contract agreements to reduce construction noise impacts:

- a) Muffle and maintain all equipment used on site. All internal combustion engine-driven equipment shall be fitted with mufflers, which are in good condition. Good mufflers shall result in non-impact tools generating a maximum noise level of 80 dB when measured at a distance of 50 feet.
- b) Utilize “quiet” models of air compressors and other stationary noise sources where technology exists.
- c) Locate stationary noise-generating equipment as far as possible from sensitive receptors when sensitive receptors adjoin or are near a construction project area.
- d) Prohibit unnecessary idling of internal combustion engines.
- e) Prohibit audible construction workers’ radios on adjoining properties.
- f) Pursuant to the Municipal Code, restrict noise-generating activities at the construction site or in areas adjacent to the construction site to the hours between 7:00 a.m. and 7:00 p.m., Monday through Saturday, and not at all on Sundays and holidays.
- g) Allowable construction hours shall be posted clearly on a sign at each construction site.
- h) Designate a "noise disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. This individual would most likely be the contractor or a contractor’s representative. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would require that reasonable measures warranted to correct the problem be implemented. Conspicuously post a telephone number for the disturbance coordinator at the construction site and include it in the notice sent to neighbors regarding the construction schedule. Implementation of the above measures will limit the overall noise level and duration of construction activities, while also giving any persons disturbed by occasional loud noises an identifiable method of recourse.

### **Significance After Mitigation:**

Implementation of the above mitigation measures would reduce construction noise levels emanating from the site, limit construction hours, and minimize disruption and annoyance. With the implementation of these measures, and recognizing that noise generated by much of the project would occur at distances greater than 500 feet from adjacent sensitive land uses, the substantial temporary increase in ambient noise levels would be less-than-significant.

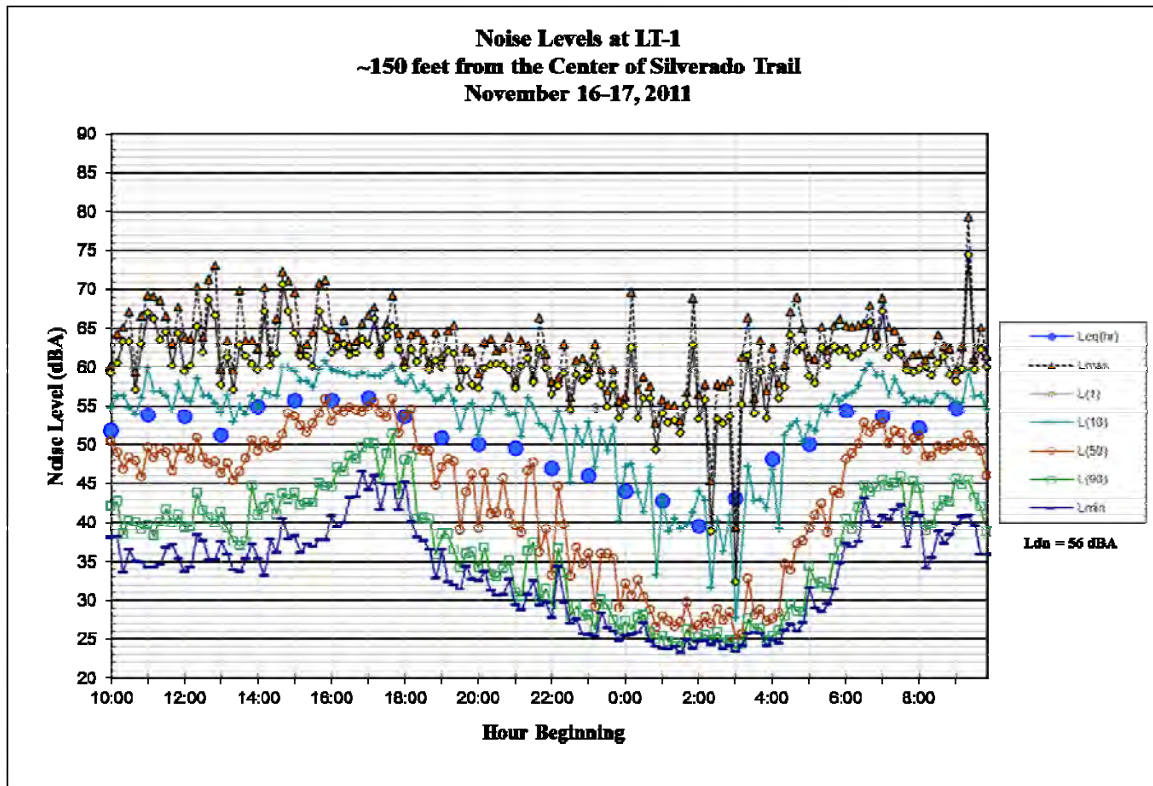
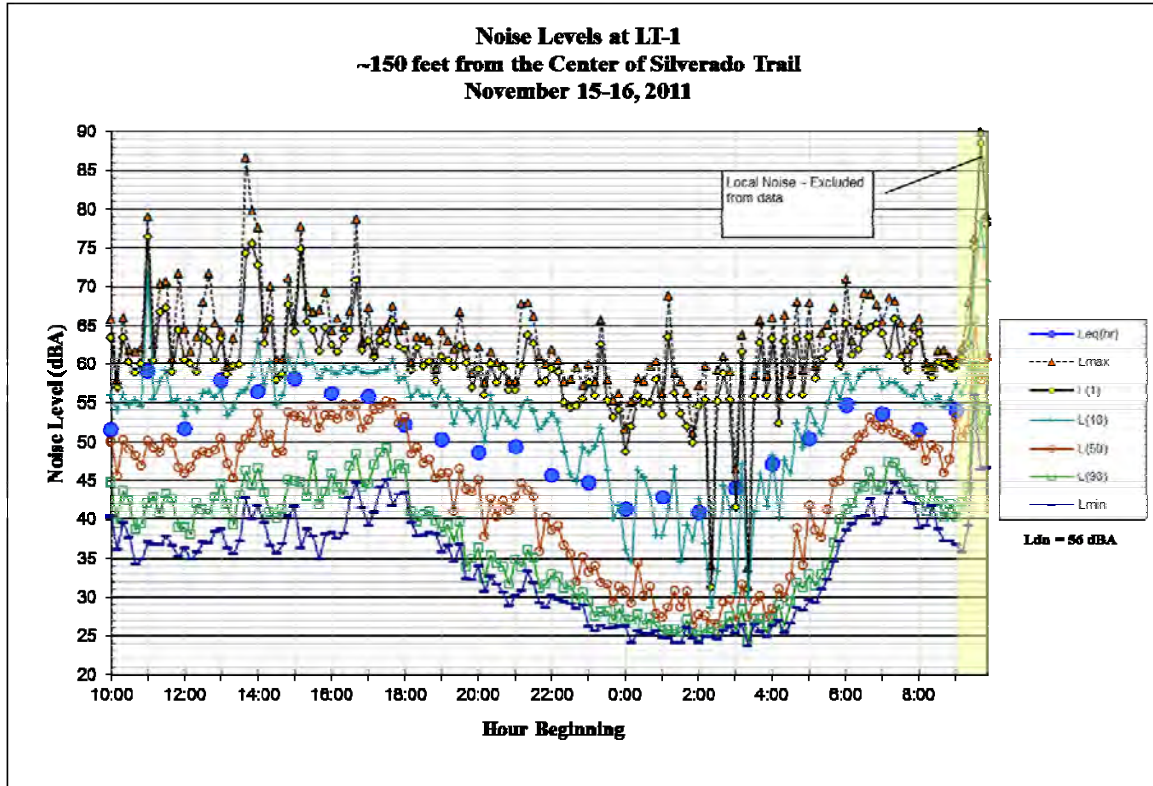


**Figure 1 Site Plan Showing Noise Monitoring Locations**

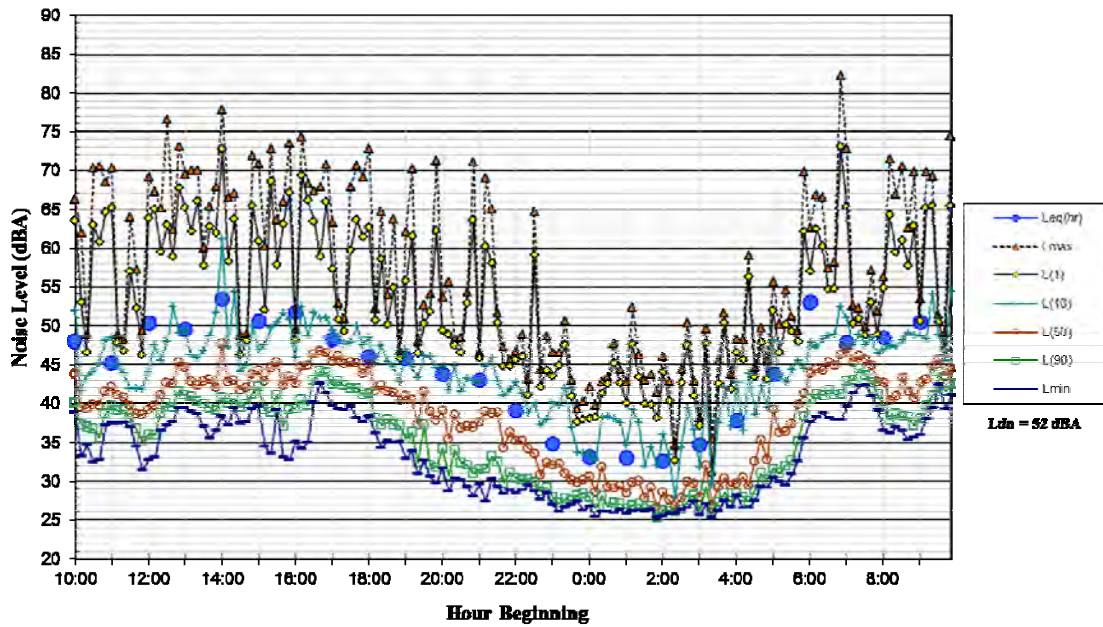




## Appendix 1: Daily Trend in Noise Levels



**Noise Levels at LT-2  
 ~30 feet from the Center of Rosedale Road  
 November 15-16, 2011**



**Noise Levels at LT-1  
 ~30 feet from the Center of Rosedale Road  
 November 16-17, 2011**

